

Claims 15-50 have been restricted to Group I (claims 15-41) drawn to an array and Group II (claims 41-50) drawn to a method of using the array. Applicants elect Group II for further prosecution. New claims 51-82 are all directed to methods of detecting a nucleic acid using an array, and thus fall within the subject matter of Group II. This election is made with traverse for the reasons given below.

Applicants are further required to elect a species for the variables  $R_1$ ,  $R_2$ , SCM, X, Y, and n and identify claims readable on the elected species. In response, Applicants hereby elect the species where the variables  $R_1$  and  $R_2$  are hydrogen, SCM is a thiol containing moiety, X is a hydroxyl, Y is oxygen, and n is 16. Claims readable upon the elected species include each of claims 54-56, 58-61, 63-64, and 68-78.

Election is made with traverse since Group II, identified as being in class 435, subclass 94, is encompassed under mainline class 4, which is "Measuring or testing process involving enzymes or microorganisms; compositions or test strip therefore, process of forming such composition or test strip." Subclass 94 specifically refers to "process wherein the product synthesized is an enzymatically isomerized polysaccharide or saccharide containing compound." As this class appears unrelated to methods of detecting a target nucleic acid using an array, reconsideration of the asserted classification is respectfully requested.

Applicants respectfully submit that the claims are in condition for allowance and early notification to that effect is respectfully requested. Please direct any calls in connection with this application to the undersigned attorney at (415) 781-1989.

Respectfully submitted,

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## APPENDIX OF PENDING CLAIMS

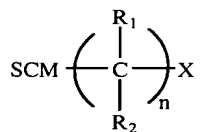
- 51-54. (New) A method of detecting at least one hybridization complex comprising a target nucleic acid, said method comprising:
- a) adding a target nucleic acid to an array to form at least a first hybridization complex, said array comprising a solid support having a plurality of regions, each region comprising an electrode and a self-assembled mixed monolayer comprising
    - i) blocking moieties, having a first end attached to said electrode, wherein said blocking moieties shield nucleic acids from said electrode; and
    - ii) at least one modified nucleic acid comprising a nucleic acid and a linker moiety having a first and second end;wherein said first end of said linker is attached to said electrode and said second end is attached to said nucleic acid;
  - wherein at east two different regions comprise different probe nucleic acids;
  - b) adding an agent that distinguishes between single and double stranded nucleic acids; and
  - c) detecting the presence of said first hybridization complex.

52-55. (New) A method according to claim <sup>51</sup>54, wherein said first end of said blocking moieties is attached to said electrode via a sulfur linkage.

53-56. (New) A method according to claim <sup>52</sup>55, wherein said first end of said linker is attached to said electrode via a sulfur linkage.

54-57. (New) A method according to claim <sup>51 52 53</sup>54, 55, or 56, wherein said electrode comprises gold.

55-58. (New) A method according to claim <sup>51</sup>54, wherein said blocking moieties have the formula:



wherein

SCM is a sulfur-containing moiety, wherein said sulfur containing moiety is attached to said electrode;

$R_1$  and  $R_2$  are independently selected from the group consisting of hydrogen and substituent groups;

$n$  is an integer from 3 to 50; and

$X$  is a terminal group.

<sup>55</sup>  
56 ~~59~~ (New) A method according to claim ~~58~~<sup>55</sup>, wherein  $R_1$  and  $R_2$  are hydrogen.

<sup>56</sup>  
57 ~~60~~ (New) A method according to claim ~~59~~<sup>56</sup>, wherein said blocking moieties comprise alkyl.

<sup>55 56 57</sup>  
58 ~~61~~ (New) A method according to claim ~~58~~<sup>55</sup>, ~~59~~<sup>56</sup>, or ~~60~~<sup>57</sup>, wherein  $n$  is  $\geq 6$ .

<sup>51</sup>  
59 ~~62~~ (New) A method according to claim ~~54~~<sup>51</sup>, wherein said blocking moiety is a branched molecule.

<sup>51</sup>  
60 ~~63~~ (New) A method according to claim ~~54~~<sup>51</sup>, wherein said blocking moiety is a straight chain alkyl group.

<sup>60</sup>  
61 ~~64~~ (New) A method according to claim ~~63~~<sup>60</sup>, wherein said alkyl ranges from 1 to 20 carbon atoms.

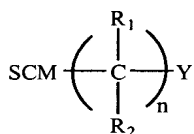
<sup>51</sup>  
62 ~~65~~ (New) A method according to claim ~~54~~<sup>51</sup>, wherein said array comprises a plurality of different blocking moieties.

<sup>62</sup>  
63 ~~66~~ (New) A method according to claim ~~65~~<sup>62</sup>, wherein at least one of said blocking moieties is a branched molecule.

<sup>62 63</sup>  
64 ~~67~~ (New) A method according to claim ~~65~~<sup>62</sup> or ~~66~~<sup>63</sup>, wherein at least one of said blocking moieties is an alkyl group.

- 55  
68. (New) An method according to claim 58, wherein for said blocking moiety,  
85  
SCM is a thiol containing moiety;  
R<sub>1</sub> and R<sub>2</sub> are hydrogen;  
n is 16; and  
X is hydroxyl.

- 51  
69. (New) A method according to claim 54, wherein said linker moiety has the formula:



wherein

SCM is a sulfur-containing moiety, wherein said sulfur containing moiety is attached to said electrode;

R<sub>1</sub> and R<sub>2</sub> are independently selected from the group consisting of hydrogen and substituent groups;

n is an integer from 3 to 50; and

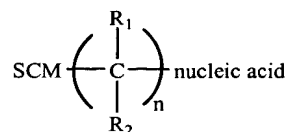
Y is the point of attachment for a nucleic acid.

- 67 70. (New) An method according to claim 66, wherein said linker moiety is a straight chain alkyl group.

- 68 71. (New) An method according to claim 70, wherein said alkyl group ranges from 1 to 20 carbon atoms.

- 69 72. (New) A method according to claim 69, wherein for said linker moiety,  
SCM is a thiol containing moiety;  
R<sub>1</sub> and R<sub>2</sub> are hydrogen;  
n is 16; and  
Y is oxygen.

- 73 (New) A method according to claim <sup>51</sup>~~54~~, wherein said modified nucleic acids have the formula:



wherein

SCM is a sulfur-containing moiety, wherein said sulfur containing moiety is attached to said electrode;

R<sub>1</sub> and R<sub>2</sub> are independently selected from the group consisting of hydrogen and substituent groups; and

n is an integer from 3 to 50.

- 71 ~~74~~ (New) A method according to claim <sup>70</sup>~~73~~, wherein R<sub>1</sub> and R<sub>2</sub> are hydrogen.

- 72 ~~75~~ (New) A method according to claim <sup>66 70 71</sup>~~69, 73, or 74~~, wherein n is ≥6.

- 73 ~~76~~ (New) A method according to claim 73, wherein for said linker moiety,  
SCM is a thiol containing moiety;  
R<sub>1</sub> and R<sub>2</sub> are hydrogen;  
n is 16; and  
Y is oxygen.

- 74 ~~77~~ (New) A method according to claim <sup>51</sup>~~54~~, wherein said blocking moiety comprises a phosphorus-containing moiety.

- 75 ~~78~~ (New) A method according to claim <sup>51</sup>~~54~~, wherein said nucleic acid is attached to said linker at a 2' position of a ribose.

- 76 ~~79~~ (New) A method according to claim <sup>51</sup>~~54~~, wherein said nucleic acid is attached to said linker at a 3' position of a ribose.

77 ~~80~~ (New) A method according to claim <sup>51</sup>~~54~~, wherein said nucleic acid is attached to said linker at a base of said nucleic acid.

78 ~~81~~ (New) A method according to claim <sup>51</sup>~~54~~, wherein said nucleic acid is attached to said linker at a phosphate linkage of said nucleic acid.

79 ~~82~~ (New) A method according to claim <sup>51</sup>~~54~~, wherein said agent is an intercalating agent.